May 21*st.*

Vice President BRIDGES, in the Chair.

Thirty-four members present.

Papers were presented for publication, entitled:

"Descriptions of Forty-nine New Species of the Genus Malania," by Isaac Lea.

"Synopsis of the Uranoscopoids," by Theo. Gill.

May 28*th.*

Mr. LEA, President, in the Chair.

Twenty-eight members present.

On report of the respective committees, the following papers were ordered to be published in the Proceedings:

On the HAPLOIDONOTINÆ.

BY THEODORE GILL.

There are found in the larger fresh water rivers and lakes of North America, west of the Rocky Mountains, and in the sea and inlets along its eastern and gulf coast, fishes which have the closest external resemblance to the typical Sciænoids, and especially to the *Corvinæ*. Yet those fishes whose external characters are scarcely sufficient to even justify generic separation from the *Corvinæ* are distinguished by a structure of the lower pharyngeal bones, which is entirely different from that exhibited by the corresponding bones of the Sciæninæ. The difference existing between them is of such character that the learned Johannes Müller considered himself justified in assigning to them an ordinal value, and his views have been since adopted by almost all of the most learned ichthyologists. In the Sciæninæ, the lower pharyngeal bones are always and as decidedly distinct from each other as in any of the Acanthopteri of Müller. In the fishes now under discussion, the corresponding bones of the adult are firmly and immovably united in the same manner as those of the Pharyngognathi. The study of them is therefore of the greatest interest and importance, for we have thus the simple question of the value of the comparative characters of one part of the organization, relieved of all secondary considerations, to decide upon. There are no other differences of structure to accompany this one supposed fundamental character.

There had been previously known many forms, which had respectively the acanthopteran and pharyngognathan pharyngeal bones, which mutually resemble each other. Such are the Centrarchinæ and the Chromoids. The members of these two groups have a very strong resemblance to each other. This is equally exhibited in form, in the armature of the fins, in color and in habits. But it is found that while the first fishes have always teeth, at least on the vomer, six branchiostegal rays and an entire lateral line, the Chromoids have the palatine arch entirely edentulous, only five branchiostegal rays, and the lateral line always interrupted; it may perhaps be also added that the fishes of the last family have the intermaxillary bones with longer ascending processes, and consequently capable of greater protrusion than those of the

first. It may consequently be argued that the resemblance is one of analogy rather than of actual affinity, but with the fishes now under consideration, such can scarcely be argued. It can not be truly said that the real affinities are veiled under analogical resemblances, where all of the organization save one part is similar. For with the exception of the pharyngeal bones, there is no difference of at most more than generic importance between some of the genera of Sciæninæ and those of Haploidonotinæ. The form is similar; the characteristic peculiarities of the skeleton, the intestinal canal and the rest of the viscera, the squamation, the structure of the fins, the peculiar incisions of the margin of the snout between the preorbital bones, the pores of the lower jaw, the number of branchiostegal rays, the dentition, and all other features, are reproduced in the respective genera. Such being the case, we cannot hesitate to believe that the likeness between the Haploidonotinæ and the Sciæninæ is truly indicative of affinity, and we are then naturally led to the conclusion that Müller's Pharyngognathi are not entitled to ordinal distinction, although admitting that the *Acanthopteran Pharyngognathi*, known to that illustrious biologist, are natural associates.

The subfamily of Haploidonotinæ, so far as is yet known, is entirely confined to North America. Only two genera are known, one characterized by the presence of small filaments beneath the chin and lower jaw, is represented by two species found along the Atlantic coast of North America. They are the *Pogonias fasciatus* Lac., and *Pogonias chromis* Cuv. The second has no filaments, and its species are fluviatile and lacustrine; the name of *Aplodinotus* was first conferred on it by Rafinesque.

As the name of *Aplodinotus*, or according to its etymology, *Haploidonotus*, is here for the first time restored, it seems advisable to review the reasons which have induced us to adopt this in face of the assertion made by Rafinesque in the Ichthyologia Ohiensis. Rafinesque has there* characterized a genus which he has called *Amblodon*, and has remarked that it was called by him "*Aplodinotus* G. 8, of my Memoir on 70 New Genera of American animals, in the Journal History of Paris, having been led into error, in supposing that the remarkable teeth of its throat belonged to the Buffalo-fish, as will be seen below." Under the specific description, he gives† a very good account of the pharyngeal dentition, and adds that "these teeth and their bones are common in many museums, where they are erroneously called teeth of the Buffalo-fish, or of a cat-fish. I was deceived so far by this mistake, and by the repeated assertions of several persons, as to ascribe those teeth to the Buffalo-fish, which I have since found to be a real *catastomus;* this error I now correct with pleasure."

Rafinesque, with accustomed carelessness, has reversed the proposition. It was under the name of *Amblodon* that he formerly described the lower pharyngeal bones of the Sciænoid, assigning them to two catastomoids. Under the name of *Aplodinotus*, he indicated as correctly as was customary with him the external features of the genus of Sciænoids. As the Journal in which his descriptions were published, is almost inaccessible in America, the following abstract is offered, the series being in the Library of the Smithsonian Institution:

8. Aplodinotus (Thoracique). Corps oblong comprimé. Tête et opercules écailleux, préopercules dentelés, second opercule membraneux inerme, membranes branchiales à 6 rayons. Lèvres extensibles à petites dents en râpe. Deux nageoires dorsales confluentes, la première a rayons épineux, la seconde sans rayons épineux, écailleuse longitudinalement à sa base. Nageoires

*Ichthyologia Ohiensis, p. 24.

†Ichthyologia Ohiensis, p. 25.

thoraciques sans appendices, à 7 rayons dont 1 épineux, anus posterieur. Le type de ce genre est un beau et excellent poisson de l'Ohio, *A. grunniens*, qui pèse quelque fois jusqu' à 30 liv., et que l'on y nomme *Ohio Perch*, ou *Grunting Perch* (Perche grognante,) parce qu'il produit souvent un grognement particulier. Entierement argenté, a renflets dorés, ligne laterale courbe posterieurement, queue lunulee, 1 rayon dorsal et anal extrêmement court, 2 rayons des thoraciques mucronés. D. $\frac{9}{7}$, 35. A.—. P. 18. C. 20. Ce genre est voisin du genre *Sciæna*, les opercules et nageoires écailleux l'en distinguent.

16. Amblodon (Abdominal). Différent du genre *Catastomus*. Machoire inférieure pavée de dents osseuses serrées, arrondies, à couronne plate, inégales. Les poissons de ce genre, qui abondent dans l'Ohio, le Missouri et le Mississipi, sont distingués par le nom vulgaire de *Buffalo-fish* (Poisson buffle,) et les François de la Louisiane les nomment *Piconeau*. Il y en plusieurs espèces qui parviennent souvent à une tres grosse taille. Les deux suivans habitent dans l'Ohio. 1. *A. bubalus*, Brunchiâtre, pale dessous, Joues blanchâtres, D. 28, A. 12, P. 16, A. 19, C. 24. L' *A. niger* est entièrement noir; tous deux ont la ligne latérale droite, queue bilobée, tête tronquée, etc. Ils sont tres-bons à manger.

After a perusal of the above descriptions, there can be no doubt that if they alone are consulted, the name of *Aplodinotus* must be retained. But it is with much reluctance that that name is adopted, and only in obedience to the inexorable law of priority. The name of *Amblodon* is most appropriate and correctly formed, while *Aplodinotus* is both vague and erroneously compounded. It is not quite certain how the name is derived. Agassiz, in his "Nomina Systematica Generum Piscium" derives it from ἁπλόος simple, and νωτος back; a far more probable derivation is from ἁπλοΐς, ίδος, a simple cloak to fit the body, and νωτος, the back, in allusion to the scaly coating of the base of the second dorsal fin, which Rafinesque considered as the character which chiefly distinguished the genus from *Sciæna*. Had he derived it as Agassiz suggests, he would have undoubtedly written *Aplonotus*. Accepting the above as the true etymology, the orthography of *Haploidonotus* is adopted as more correct.

It is advisable to state that there are three errors in Rafinesque's short diagnosis of "*Aplodinotus*" which need to be corrected. There are seven instead of six branchiostegal rays; there is a spine in front of the second dorsal fin, as was afterwards mentioned in the description of *Amblodon* in the Ichthyologia Ohiensis; there is the normal number of ventral rays, and not one spine, and six soft rays. The last error is almost excusable in such an observer as Rafinesque, for the external branch of the first ray is much developed, and resembles somewhat the large simple ray of a pectoral or caudal fin.

Adopting the name of *Haploidonotus* for the genus, it is taken as the type of the subfamily, whose characters, as well as those of its two genera, are now given.

Subfamily HAPLOIDONOTINÆ Gill.

The body is oblong and suboval, highest at the front of the spinous dorsal fin; the ante-dorsal region convex.

The head is oblong, with the occipito-nasal profile very oblique, and the snout high and more or less convex. The upper jaw is longer than the lower. The supramaxillary bones are mostly retractile under the suborbitars, and cease before the vertical of the end of the orbit. The margin of the snout between the preorbital bones has four small oblique incisions. There are five pores beneath the chin.

The first dorsal fin is longer than high, and commences nearly over the bases of the pectorals; it is connected with the second by a very low membrane.

The anal fin is trapezoidal, higher than long, and under or behind the median rays of the second dorsal.

The pectoral fins are pointed. The ventral are inserted almost beneath the bases of the pectoral.

The scales on the body and crown have pectiniform borders; those on the cheeks and opercula are mostly cycloid.

The lateral line is continued to the end of the caudal fin.

The inferior pharyngeal bones are triangular, with their basal or posterior margin widest, and provided with a shallow, braced-formed (⌒) emargination, the posterior processes being short and robust. There is a much thickened triangular area beneath and behind, the apex of which is continued into a median or sutural carina or elevation, whence the bones decrease in thickness to the margin. From the base of each ascending side of the thickened triangular area, a strong compressed process proceeds downwards and outwards, and is nearly at a right angle to an inferior ridge, which terminates at the end of the compressed posterior process of the bone.

There are three upper pharyngeal bones on each side; the median is broad and of a curvilinear, triangular or subcircular form; the anterior and posterior narrow.

Most of the teeth of the inferior and upper pharyngeal bones of the adult are molar, short, and with truncated or slightly excavated crowns. Only those of the external margins are sometimes cylindro-conic.

The setœse laminæ of the ceratohyals of the first pair of branchial arches are very short and compressed; their internal margins are provided with small acute teeth. The dentiferous lamellæ of the remaining branchial arches are small and ridge-like, distant and armed with small recurved acute teeth.

Pseudobranchiæ are present.

The pharyngeal bones of the young are separated, but in the adult they become immoveably united, like those of the Pharyngognathi of Müller. The teeth of the young also incline toward an obtusely cylindro-conic form, but with advancing age, they become more and more robust and truncated, and in the old, almost the entire surfaces of the lower and median upper pharyngeals are paved with short truncated molars. The teeth of the external margins of the median upper pharyngeals generally retain the form which the teeth of the young possessed.

Genus Haploidonotus (Raf.)

Aplodinotus *Raf.*, Journal de Physique, de Chemie, et d'Histoire Naturelle, vol. lxxxviii. p. 418. June, 1819.

Amblodon *Raf.*, Journal de Physique, de Chemie, et d'Histoire Naturelle, vol. lxxxviii. p. 421. June, 1819.

Lower pharyngeal bones described and erroneously attributed to Catastomoids:

Amblodon *Raf.*, Ichthyologia Ohiensis, p. 24.

Corvina sp., *Cuvier, Richardson, Kirtland, DeKay, Storer, Günther*, etc.

Amblodon *Agassiz*, American Journal of Science and Art, ser. ii. vol. xvii. p. 307.

" sp. *Girard*, Report of Explorations and Surveys for Pacific Railroad route, vol. x. *Fishes*, p. 95.

Body rather elongated or oblong; the subdorsal outline declines backwards with scarcely a curve.

Head oblong; dorso-nasal profile declining with a slight sigmoidal curve; snout high and truncated. Eyes mostly anterior. Preoperculum minutely crenulated. Chin covered with simple skin.

Teeth on a villiform band in each jaw; that of the upper preceded by a row of slightly larger ones.

Anterior dorsal fin with nine or ten spines. Anal with two spines, the second of which is large. Caudal lanceolated.

The pharyngeal bones as well as the armature of the branchial arches have been described as characteristic of the subfamily. There is no essential difference between those of the two genera of the group.

Type Haploidonotus grunniens (*Raf.*)

Syn. Aplodinotus grunniens *Raf.*, Journal de Physique, vol. lxxxviii.
Amblodon grunniens *Raf.*
Sciæna oscula *Les.*
Sciæna grisea *Les.*
Corvina oscula *Cuv. et Val.*
Corvina grisea *DeKay.*

Genus Pogonias Lacépède.

Labrus sp. *Linn.*
Pogonias *Lacépède*, Hist. Nat., vol. iii. p. 137.
Pogonathe sp. *Lacépède*, Hist. Nat., vol. v. p. 121.
Sciæna sp. *Lacépède*, *Mitchell.*
Labrus sp. *Mitchell.*
Pogonias *Cuvier*, Regne Animal, ed. i. vol. ii. p. 298.
Pogonathus *Bon.*

Body oblong; subdorsal outline little decurved backwards.

Head oblong; dorso-nasal profile nearly regularly curved, or the sigmoidal flexure obsolete. Snout high. Eyes anterior. Preoperculum entire. Chin furnished with many filaments, and each ramus of the lower furnished internally for most of its length with a row of distant ones.

Teeth in a villiform band in each jaw.

Anterior dorsal fin with ten spines. Anal with two; the second large and stout. Caudal subtruncated.

This genus is very closely related to *Haploidonotus*, the only essential differential characters being the beard filaments of the chin and lower jaw, and perhaps the form of the caudal fin.

Type Pogonias fasciatus *Lacépède.*

An additional representative of the subfamily of Haploidonotinæ may perhaps be found in the *Chilotrema fasciatum* of Tschudi.* That species has a greater superficial resemblance to the *Pogonias fasciatus* than any other fish, but bearing in mind the close resemblance of *Haploidonotus* to *Corvina*, we do not even dare to positively assert that it belongs to the same subfamily.

The following list will exhibit the number of species of the subfamily of Haploidonotinæ of the United States. As has been already remarked, the genus *Pogonias*, containing bearded species, with truncated caudal fins, are marine, and found on the Atlantic coast, while the *Haploidonoti*, without beards, and with lanceolated caudal fins, are found only in the larger fresh water rivers and lakes.

Genus Haploidonotus (Raf.)

Haploidonotus grunniens *Raf.*
Aplodinotus grunniens *Raf.*, Journal de Physique, &c., vol. lxxxviii, p. 418.
Haploidonotus concinnus *Gill.*
Amblodon concinnus *Agassiz*, American Journal of Science and Art, ser. ii. vol. xvii. p. 307.

* *Tschudi* Fauna Peruana. Ichthyologia, p. 13, tab. 1.

Haploidonotus lineatus *Gill.*

Amblodon lineatus *Agassiz*, American Journal of Science and Art, ser. ii. vol. xvii. p. 307.

Haploidonotus neglectus *Gill.*

Amblodon neglectus *Girard*, United States and Mexican Boundary Survey. *Ichthyology*, p. 12, pl. v. figs 6–10.

Haploidonotus Richardsonii *Gill.*

Corvina Richardsonii *Cuv. et Val.*, Hist. Nat. des Poissons, vol. v. p. 100.

The last species will be found to be the representative of a distinct genus, but with our present knowledge, it is unadvisable to characterize it. Cuvier and Valenciennes, in the Histoire Naturelle des Poissons, as well as Richardson in the Fauna Boreali-Americana, have attributed to it seven branchiostegal rays. In the article "Ichthyology," of the last edition of the Encyclopædia Britannica, (p. 284,) Sir John Richardson has remarked of the species as follows: "We have, however, some suspicion of its belonging more properly to the Theraponidæ than to the Sciænidæ, notwithstanding Cuvier's weighty authority. It has only six branchiostegals." The former description is probably correct. The species certainly is not allied to the Theraponidæ. It differs principally from the true *Haploidonoti* by the form of its head, and of the caudal fin.

The *Amblodon saturnus* of Girard belongs to the subfamily of Sciæninæ, and to the genus *Rhinoscion* Gill.

Of the marine genus, there are two species.

Genus Pogonias Lac.

Pogonias fasciatus *Lac.*

Pogonias chromis *Cuv.*

On the Genus ANISOTREMUS Gill.

BY THEODORE GILL.

In the "Catalogue of the Fishes of the Eastern Coast of North America," the *Pristipoma rodo* of Cuvier, which is a doubtful or accidental visitor to the southern coast of the United States, has been taken as the type of a distinct genus on which the name of *Anisotremus* has been conferred. The characters of the genus are now given, with descriptions of the type and a newly discovered species from the western coast of Central America.

Anisotremus Gill.

Anisotremus *Gill*, Catalogue of the Fishes of the Eastern Coast of North America, p. 32.
Sparus sp. *Linn.* et al.
Perca sp. *Bloch.*
Grammistes sp. *Bloch, Schneid.*
Lutjanus sp. *Lacépède.*
Pristipoma sp. *Cuv., auct.*

Body rhombo-ovate and much compressed, highest at the anterior part of the first dorsal fin, and thence declining toward the end of the second, gradually under the first, more rapidly under the second. Ante-dorsal region very convex, and profile thence declining very rapidly to the snout.

Head laterally of a rhomboid form, higher than long, with the profile very oblique and nearly parallel with the obliquely descending border of the operculum. Preoperculum behind nearly vertical and finely serrated. Two pores in front of the lower jaw, and a central groove behind.

Mouth small and terminal. Supramaxillars and ends of maxillars entirely exposed, and invested in very thick attached lips. Lower jaw also with very thick lateral lips separated by a wide isthmus.

Teeth villiform in each jaw, with a somewhat larger external row.

Anterior dorsal behind lower than the second, generally with twelve spines, the third, fourth and fifth of which are longest. Anal fin with three spines, the second of which is very large and compressed. Caudal deeply notched. Pectoral fins acuminate.

Branchiostegal membrane thick and with the emargination below, not extending much before the angle of the preoperculum; six branchiostegal rays.

The lower pharyngeals when united present above a U-shaped outline, with the limbs slowly diverging. Behind and between the posterior processes is a transverse emargination of a semi-elliptical form. Beneath, there is a V-shaped ridge, whose limbs terminate in the compressed posterior processes of the bones. The bones are thickest at and behind the posterior third, where the limbs of the V-shaped ridge are also swollen. The bones are in close contact to each other.

The upper pharyngeals are triple on each side; the median is triangular, with its angles rounded.

The teeth of the lower pharyngeals have mostly hemispherical summits. The lateral marginal ones are cylindro-conical, and those at the bases of the posterior processes are elongate-conic.

The teeth of the median upper pharyngeals are also mostly molar, those of the lateral margins and those of the anterior and posterior bones are cylindro-conic.

The setæ of the cerato-branchials of the first pair of branchial arches are short, compressed, tapering and almost smooth. The inner side of the first, and both sides of the second and third branchial arches with alternating larger and smaller vertical ridges, which are longitudinally grooved below; they are mostly unarmed, but the larger have sometimes one or two teeth at their extremities. The branchial arches of the fourth pair have many little separated dentiferous tubercles on their concave margins; the teeth are chiefly cylindro-conic.

The genus now characterized differs from *Pristipoma*,* of which the *Pristipoma hasta* of Cuvier or *Lutjanus hasta* of Bloch is the type, by its form, smaller mouth, thick lips and pharyngeal bones; the height is much greater and the profile much more oblique; the facies is consequently quite dissimilar to that of the *Pristipoma hasta*.

ANISOTREMUS VIRGINICUS Gill.

Guatucupa Juba *Marcgrave*, Historia Naturalis Brasiliæ, p. 147. 1648.
Acara pinima *Marcgrave*, loc. cit, p. 152.
Sparus virginicus *Linn.* Systema Naturæ, ed. x. (Holmiæ,) vol. i. p. 281. 1758.
Sparus vittatus *Bloch*, Naturgeschichte der Ausländischen Fische.
Perca juba *Bloch*, op. cit. tom.
Le Rhomboidal *Daubenton and Haüy*, Encyclopedie Methodique, tom iii. pp. 333, 376.
Le Rhomboidal (S. Virginicus) *Bonnaterre*, Tableau Encyclopedique et Methodique, *Ichthyologie*, p. 103.
Sparus virginicus *Linn.*, Systema Naturæ, *Gmelin* ed., p. 1278.
Sparus vittatus *Artedi*, Genera Piscium, *Walbaum* ed., p. 290.
Sparus virginicus *Artedi*, Genera Piscium, *Walbaum* ed., p. 297.
Sparus Jub. *Lacépède*, Hist. Nat. des Poissons, tom. iv. pp. 43, 138.
Lutjanus virginicus *Lacépède*, op. cit., tom. iv. pp. 197, 199.

*Pristipoma *Cuv.* Regne Animal, ed. i. vol. ii. p. 279.

Grammistes Juba *Bloch*, Systema Ichthyologiæ, *Schneid.* ed. p. 184.
Grammistes mauritii *Bloch*, Systema Ichthyologiæ, *Schneid.* ed. p. 185.
Sparus virginicus *Bloch*, Systema Ichthyologiæ, *Schneid.* ed. p. 274.
Juba Sparus *Shaw*, General Zoology, vol. iv. p. 431, 1803.
Virginian Sparus *Shaw*, op. cit. vol. iv. p. 436.
Vittated Sparus *Shaw*, op. cit. vol. iv. p. 465.
Pristipoma rodo *Cuv. et Val.*, Hist. Nat. des Poissons, tom v. p. 274. *Storer*, Synopsis of the Fishes of North America, p. 76; *ib.* in Memoirs of the American Academy of Arts and Sciences, vol. ii. p. 328. *Guichenot*, in *Ramon de la Sagra's* Histoire de Cuba, *Poissons*, p. 70.
Pristipoma virginicum *Günther*, Catalogue of the Acanthopterygian Fishes, &c., p. 288.
Anisotremus virginicus *Gill*, Catalogue of the Fishes of the Eastern Coast of North America, p. 32.

The number and character of the rays is expressed in the following formula:

D. XII. $\frac{1}{1}$ 14— to $\frac{1}{1}$ 16—. A. III. $\frac{1}{1}$ 9—. C. 4, 1, 8, 7, 1, 3. P. 2, 14. V. I. 5.

The body is of a steel blue color, which merges into a silvery gray on the abdomen. There are darker spots on the central portions of the scales of the dorsal region, which have a tendency to form *oblique purplish lines running behind and upwards.* There are two vertical bands, the anterior of which is oblique, and runs from the nape to the corner of the mouth, but interrupted at the eye. The second is vertical and proceeds from the front of the dorsal fin to the base of the pectoral. Behind the latter bands, there are about *seven broad longitudinal bands of a light yellow color, most of which are double or branched anteriorly.* The sixth and seventh bands are not usually divided in front. The upper branch of the third band is sometimes again subdivided. The first band terminates under the first five soft-branched rays of the dorsal fin; the second under first part of the second half of the articulated portion of the dorsal; *the third extends on the upper ridge of the caudal peduncle and unites with that of the opposite side behind the dorsal; the fourth runs on the sides of the tail along the scales of the lateral line;* the fifth runs behind above the inferior ridge of the caudal peduncle; the sixth ends at the terminal portion of the anal fin; the seventh is very indistinct. The fins are yellowish; the ventral tinged with purplish.

This species was first very well described by Linnæus, under the name of *Sparus virginicus*, and the specific portion of his name has been consequently retained. If, however, it should not be hereafter discovered on any part of the coast of the ancient colony of Virginia, it will be requisite to change the name, and as Bloch's name of *Sparus vittatus* is next in order of time, that may be adopted, notwithstanding his defective figure and description. They are no worse than those of many other species for which his names have been retained. It will therefore be named *Anisotremus vittatus.*

Under the name of *Pristipoma virginicum*, Dr. Günther has published a description which is inapplicable to this species. He mentions the presence behind the vertical dorso-pectoral band of only "six parallel bluish longitudinal bands." Such a description would be rather more applicable to the *Anisotremus tæniatus* of Panama here described, were the bands margined with purplish. But Dr. Günther has probably had specimens in which the ground color and yellow bands had faded and become merged below, and has mistaken the ground color on the dorsal and lateral regions for bands.

ANISOTREMUS TÆNIATUS Gill.

The radial formula is as follows:

D. XII. $\frac{1}{1}$ 16—. A. III. $\frac{1}{1}$ 9—. C. 4, 1, 8, 7, 1, 3. P. 2, 16. V. I. 5

The first spine of the anal fin is shaped like a compressed pen.

The body is of a buff or fawn color, inclining to silvery beneath, and with *golden lines running along the median line of the scales;* those of the dorsal region run obliquely backwards and upwards. There are two vertical bands, one of which is oblique, and passes from the nape to the angle of the mouth, but interrupted by the eye; the second is vertical, and extends from the commencement of the dorsal fin to the base of the pectoral. There are also behind on each side *seven longitudinal* and nearly parallel *silver simple narrow bands bordered on each edge with purplish;* the first is immediately under the spinous part of the dorsal from the first to the tenth spinous rays; the second commences on the fifth row of scales from the back, and ends under the fifth branched ray; the third on the eighth, and extends nearly to the end of the dorsal; *the fourth* at the horizon of the superior border of the orbit, and *terminates at the base of the caudal, between the lateral line and upper surface of caudal peduncle; the fifth* runs from above the axilla of pectoral to the base of caudal, and near its *end immediately under the lateral line;* the sixth from the inferior axilla of pectoral to the end of anal; the seventh is very indistinct or obsolete. The fins are yellowish; the ventral tinged with purplish.

The species above described is very nearly allied to the *Anisotremus virginicus*. It inhabits the western coast of tropical America, and has been noticed under the name of *Pristipoma rodo*, in the Proceedings of the Academy of Natural Sciences, as being one of the few marine animals that are found on both sides of the continent. Although certainly very nearly allied to the species of the eastern waters it appears to be quite distinct. As will be seen by the comparative descriptions of the two species here offered, the color amply distinguishes them. In the species of the Caribbean Sea and neighboring waters, there are in front from ten to fourteen longitudinal yellow bands, most of which unite by pairs at a greater or less distance behind, and are reduced to seven. In the *Anisotremus tæniatus*, there are only seven narrow silvery bands bordered with purplish. The bands of the respective species are also quite differently situated. In the *Anisotremus virginicus*, there are only indistinct oblique purplish lines running along the centres of each row of scales. In the *Anisotremus tæniatus* the lines are of a golden color, and are present on the sides as well as the dorsal region.

One specimen of this species is preserved in the Museum of the Academy of Natural Sciences. It was obtained by Dr. Ruschenberger at Panama.

NOTE.—In the advance sheets of a "Conspectus Piscium Cubensium," recently published by my learned friend and correspondent, M. Poey, the Professor of Comparative Anatomy and Zoology in the Royal University of Havana, the species formerly described by that gentleman, as *Pristipoma spleniatum* and *P. trilineatum*, are referred to this genus, and called *Anisotremus spleniatum* and *A. trilineatum*. The former species is very closely allied to the *Pristipoma bilineatum* of Cuvier. I have some doubt whether those species are really congeneric with the *A. virginicus*, and having never seen them, did not dare to positively refer them to it; they are at least very closely related to them, and may possibly be generically allied.

Synopsis of the URANOSCOPOIDS.

BY THEODORE GILL.

There lives in the Mediterranean Sea a fish which has been long known and celebrated for its peculiar form. Its head is cubical; its eyes situated on the superior surface, so to only enable it to look above, its pupil being equally so directed and not towards the sides, as are those of the Rays*. This fish has

* *Cuv. et Val* Hist. Nat. des Poissons, tome iii. p. 288.

received from the ancient Greeks the various names of Οὐρανοσκόπος, Ἄγνος and Καλλιώνυμος; when it was classified in the system by Linnæus, the name of *Uranoscopus* was accepted for its generic appellation, and has been retained by all succeeding naturalists. Many species have been since referred to the genus, which, although possessed of a similar form, differ considerably in the details of structure. The peculiarity of form is therefore not a generic character, but indicative of much higher importance; it is also coincident with many other well marked characteristics, some of which are of much importance, and the combination of which without much doubt indicates that the group is of family value.*

All the species with the form of the ancient *Uranoscopus* discovered until within most recent times, had not only the same general and essential, but almost the same positive form as to its details. They chiefly differed in the comparative degree of armature of the head, the presence or absence of scales, the character of the dorsal fin, and the presence or absence of intralabial filaments and mental barbels. The differences were evidently of no more than generic value.

But comparatively, recently, there has been referred to the genus *Uranoscopus* a fish† which does indeed possess the same general form as the typical species, but differs very materially in the greater elongation of its body, as well as in several other essential characters, which the study of the family convinces us are of much more than generic value. It represents, then, not only a distinct natural genus, but a distinct subfamily; the latter has been recently named Leptoscopinæ; the genus *Leptoscopus*.‡

Still more recently, there has been referred to the family of Uranoscopoids, a remarkable fish§ first discovered at the West Indian island of Barbados, which preserves the same general form as *Uranoscopus* and the same specialized form as *Leptoscopus*. Yet this fish is characterized by a feature which may be almost termed anomalous with respect to this family. It has only three ventral rays! those rays are also simply articulated, and not branched, thus resembling those of the Blennoïds. And yet nature, as if to instruct us as to the little value of any single character which is not a modification of a most important organ, has imprinted on this fish, as has been already remarked, not only the same general but absolutely all the details of form exhibited by *Leptoscopus*. The only other *external* generic characteristic which distinguish the West Indian fish from the *Leptoscopus* are the approximation or separation of the ventral fins,‖ and the relative position of the dorsal and anal. In both of these respects, the *Leptoscopi* approach nearer to the Uranoscopinæ than the Leptoscopinæ. The dorsal and anal fins are much elongated in both of those genera, in contradistinction to those of the Uranoscopinæ; but the relative elongation is reversed in the two. In *Leptoscopus* the commencement of the dorsal is posterior to the vertical of that of the anal, while in *Dactyloscopus* it is anterior. There are also palatine teeth in *Leptoscopus*, as in all of the known *Uranoscopinæ*, whilst in the *Dactyloscopi*, they are absent. But as if to render the close affinity of the *Leptoscopi* and the *Dactyloscopi* still more evident, there has been recently discovered, at the Island of New Zealand, a fish¶ whose almost sole difference from *Leptoscopus* is also the

* The Uranoscopoids would form one of the strongest arguments in favor of the Agassizian doctrine of the value of form as a family character. That form which results from the similar relations, combinations and proportions of the most important parts, external as well as internal, appears in most cases to be characteristic of natural families.

† Uranoscopus macropygus *Richardson*.

‡ Leptoscopus *Gill, Günther*.

§ Dactyloscopus *Gill, Poey*.

‖ In this respect the *Dactyloscopi* resemble the typical Uranoscopoids more than do the *Leptoscopi*.

¶ Crapatalus *Günther*.

absence of palatine teeth. When the perfect concordance of *Leptoscopus* and *Dactyloscopus* in so many and so most characteristic features is then recalled, can the demonstration of the pertinence of the two genera to the same natural family be rendered more evident? Yet this peculiar modification of the ventral fins is most remarkable in a member of this family; it is certainly one that the naturalist would not *a priori* expect to be found. Dr. Günther, doubtless influenced by such considerations, has not noticed the *Dactyloscopi* in his catalogue of Acanthopterygian Fishes, as a member of his group of Uranoscopina. Having never seen it, he probably, notwithstanding the comparisons and observations recorded in the original description, considered it to be a Blennoid; the only character that it possesses in common with that family is the structure of the ventral fins. We again repeat, that not only the preponderance but the totality of its characters, with that sole exception, decides that its legitimate affinities are to the *Leptoscopi*. But to vindicate our appreciation of the importance of this character in the present family, we have proposed to institute for the genus a distinct subfamily.

Nor is the peculiar modification of the ventral fins the only character which is generally indicative of family rank, but here of much less value. The Uranoscopinæ have a coecal stomach and a moderate number of pyloric coeca, the number in the species examined ranging from eight to twelve, but in *Leptoscopus* the coeca are entirely absent. This is undoubtedly a characteristic of as much importance as the peculiarity of the ventral fins. Yet Dr. Günther has with propriety retained the species as characterized among his Uranoscopina, a group which is equivalent to the family of Uranoscopoids as here admitted after the substraction of the Dactyloscopi.

It will be observed that I have always compared the *Dactyloscopi* to the *Leptoscopi*, and asserted that both belong to the same family. If ever a division of the Uranoscopoids should be made, or if any forms now referred to it are abstracted, they would properly be the Leptoscopinæ and Dactyloscopinæ together. Those groups resemble each other in their elongated body covered with moderate scales, their median lateral line, the long dorsal and anal fins, and the smooth head. In all of these respects they differ from the Uranoscopinæ. The latter have also pancreatic coeca, while doubtless all the former have none. The Leptoscopinæ and Dactyloscopinæ will, therefore, be probably referred by some future naturalist to a distinct family, but I am not myself prepared at present to adopt such, and entertain some doubt whether such a separation would be ever justifiable. In my former remarks on *Dactyloscopus* I have observed that "had either the peculiarity of dentition or of the ventral fins singly distinguished the Dactyloscopi from the Leptoscopi, both might *possibly* have been naturally placed in the same tribe or subfamily." I have further remarked, that "notwithstanding the abnormal and blennoid structure of the ventrals, and the absence of the vomerine and palatine teeth, the *Dactyloscopinæ* appear to be almost as much related to the *Leptoscopinæ* as the latter are to the *Uranoscopinæ*, properly so called." Since the not unexpected discovery of *Crapatalus*, I will now express my belief in the much greater affinity between the Dactyloscopinæ and Leptoscopinæ than that of the latter to the Uranoscopinæ. The subfamilies are now indeed distinguished by almost only one character, but I still retain them.

From the preceding observations, it is apparent that there are few groups of such intrinsic interest, as well as of such importance for the proper information of the value of certain characters. We are taught not to place too great reliance on any one character, as such might cause us to violate the principle of natural classification. The close identity of general form, so characteristic of the entire family, and the combination of characters so numerous and so peculiar, forbid the naturalist from the consideration of any one of the groups referred to as the representative of different or distinct families, notwithstanding the absence of pyloric coeca in one, and the additional modification of the

ventral fins of the others. How numerous are those peculiar features which are possessed by all the members of this family will be evident from the diagnosis which is now offered.

URANOSCOPOIDÆ Gill.

The body is more or less elongated, conical or subcylindrical, widest and generally highest at the preopercular region; thence the dorsal and abdominal outlines regularly converge. The scales are very minute, or of moderate size, and sometimes absent.

The head is cuboid, little narrower, and nearly vertical in front; the eyes rather small, anterior and superior; the median infraorbital bones not connected with the preopercular. The nostrils are double. The mouth is vertical, the lips fringed. The intermaxillary bones have very short posterior processes, and are in front of the maxillary, except at the ends of the latter.

The branchial apertures are very large, and extend before the pelvic bones. The branchiostegal membrane is doubled in front, and forms a transverse flap between the dentary and angular bones, which conceals anteriorly the branchiostegals. There are six rays.

The branchiæ are biserial on the four branchial arches, and there are also pseudo-branchiæ.

The dorsal and anal fins are nearly equal in size, and are always elongated; the anus is consequently anterior. The caudal is subtruncated. The pectorals have oblique bases, and their rays rapidly decrease in length beneath. The ventrals are jugular.

Head more or less mailed above. Body moderately elongated, URANOSCOPINÆ.
Two dorsal fins.
Body scaly. Head mailed above. An intralabial filament.
Preopercular spines below, ... 1. Uranoscopus.
Preopercular spines below. Chin with barbel, 2. Nematagnus.
Body scaly. Head with a transverse posterior plate, whence proceeds a Y-shaped apophysis, . . 3. Upselonphorus.
Body naked. Head mailed above, . . . 4. Astroscopus.
Dorsal fin single.
Body scaly. Head mailed above.
Dorsal with 3—4 spines, ... 5. Ichthyoscopus.
Dorsal unarmed. Lower jaw entire, . . 6. Genyagnus.
Dorsal unarmed. Lower jaw enlarged beneath, 7. Gnathagnus.
Body naked, ... 8. Cathetostoma.
Head covered with naked skin. Body elongated.
Ventral rays I. 5, ... LEPTOSCOPINÆ.
Vomerine and palatine teeth present, . . 9. Leptoscopus.
Vomerine and palatine teeth none, . . . 10. Crapatalus.
Ventral rays 3, simply articulated, . . . DACTYLOSCOPINÆ.
Vomerine and palatine teeth absent, . . 11. Dactyloscopus.

URANOSCOPINÆ (Bon.) Gill.

The body is moderately elongated, and covered with very minute scales, or naked. The lateral line runs abruptly upwards to the dorsal region, is continued under the dorsal fin to its end, and thence deflected downwards to the base of the caudal.

The head is more or less completely covered with bony plates. There are teeth on the vomerine and palatine bones.

The anus is in the second third of the total length; the anal fin moderately elongated and with less than twenty rays. The jugular ventrals are approximated, and have each a slender spine and five rapidly increasing branched rays.

I. URANOSCOPUS (Linn.) Gill.

Trochinus sp. *Artedi*, Genera Piscium.
Uranoscopus *Linn.*, Systema Naturæ.
Callionymus sp. Gronovius.

Head above completely covered with the bony armor. Preoperculum armed beneath with four to six spines. Lower jaw with its inferior margin entire and not abruptly notched; its internal membranous velum provided with a filament. Body covered with scales. Two dorsal fins; the first with three, four or five short spines. The second corresponding to the anal.

The genus *Uranoscopus* is now restricted to those species which resemble the long known *Uranoscopus scaber* in the form of body, squamation, fins, armature of the head and the presence of intralabial barbel. The other species that have been referred to it by naturalists do not appear to be congeneric, but are rather the types of several quite distinct and well marked genera. The genus as now limited still contains nine of the known species.

1. URANOSCOPUS SCABER Linn.
   Trachinus, sp. 2, *Artedi*, Genera Piscium, p. 42.
   Uranoscopus scaber *Linn.*, Systema Naturæ, vol. i. p. 434.
   Callionymus araneus *Gronov.*
   Habitat.—Mediteranean Sea.

2. URANOSCOPUS MARMORATUS Cuv. et Val.
   Uranoscopus marmoratus *Cuv. et Val.*, Hist. Nat. des Poissons, tom. iii. p. 304.
   Habitat.—East Indies.

3. URANOSCOPUS AFFINIS Cuv. et Val.
   Uranoscopus affinis *Cuv. et Val.*, Hist. Nat. des Poissons, tom. iii. p. 304.
   Habitat.—Indian Ocean.

4. URANOSCOPUS OCCIDENTALIS Agassiz.
   Uranoscopus occidentalis *Agassiz*, Selecta Genera et Species Piscium, p. 123, pl. lxxiii.
   Habitat.—West Indies.

5. URANOSCOPUS GUTTATUS Cuv. et Val.
   Uranoscopus guttatus, *Cuv. et Val.*, Hist. Nat. des Poissons, tom. iii. p. 305.
   Habitat.—Indian Ocean.

6. URANOSCOPUS BICINCTUS Temm. et Schlegel.
   Uranoscopus bicinctus *Temminck et Schlegel*, Fauna Japonica, Pisces, p. 26, pl. 10 B.
   Habitat.—Chinese and Japanese seas.

7. URANOSCOPUS ASPER Temm. et Schlegel.
   Uranoscopus asper *Temminck et Schlegel*, Fauna Japonica, Pisces, p. 26, pl. ix. fig. 1.
   Habitat.—Chinese and Japanese seas.

8. URANOSCOPUS SULPHUREUS Cuv. et Val.
   Uranoscopus sulphureus *Cuv. et Val.*, Hist. Nat. des Poissons, tom. viii. p. 495.
   Habitat.—Friendly Islands.

9. URANOSCOPUS COGNATUS Cantor.
   Uranoscopus cognatus, *Cantor*, Catalogue of Malayan Fishes, p. 21.

II. NEMATAGNUS Gill.

Uranoscopus sp. *Cuv. et Val.*

Head above covered with bony plates. Preoperculum armed beneath with about five spines or less. Lower jaw entire beneath. *Chin with a barbel.* Intralabial filament also present. Body covered with scales. Two dorsal fins, the first of which has four short spines, the second nearly coextensive with the anal.

This genus is distinguished by the presence of the mental barbel conjoined with the characteristics of the typical *Uranoscopi.*

A single species is known; it is an inhabitant of the Indian Ocean.

NEMATAGNUS FILIBARBIS Gill.

Uranoscopus filibarbis *Cuv. et Val.*, Hist. Nat. des Poissons, vol. iii. p. 307.

III. UPSELONPHORUS Gill.

Uranoscopus sp. *Cuv. et Val.*, *Günther.*
Astroscopus sp. *Gill*, *Abbott.*

Head above with its crown only covered with a transverse plate, from the front of which a bifurcated apophysis proceeds and sends a limb to each orbit. The postocular region is consequently covered only with the skin. Cheeks naked. Preoperculum with a small angular and inferior projection, as in Astroscopus. Lower jaw entire beneath. No intralabial filament. Body covered with minute scales. Dorsal fins two; the first with four short spines; the second opposite the anal.

Upselonphorus is readily distinguished from all its relations by the skin-covered postocular regions, separated from each other by the apophysis which proceeds from the middle of the front of the transverse posterior plates. This apophysis has nearly the form of the Greek letter Υ. In allusion to this characteristic feature the name has been proposed.* The genus is also distinguished from *Uranoscopus* by the absence of an intralabial filament, and by the absence of inferior preopercular spines. The latter characteristics are found in *Astroscopus* but the head of that genus is mailed above. Two species have been discovered.

UPSELONPHORUS Y-GRÆCUM Gill.

Uranoscopus y-græcum *Cuv. et Val.*, Hist. Nat. des Poissons, tom. iii. p. 308.
Astroscopus y-græcum *Gill*, Proceedings of the Academy of Natural Sciences of Philada., 1860, p. 20.
Uranoscopus y-græcum *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 229.
Habitat.—Caribbean Sea, (Dr. Günther.)

UPSELONPHORUS GUTTATUS Gill.

Astroscopus guttatus *Abbott*, Proceedings of the Academy of Natural Sciences of Philada., 1860, p. 365, pl. vii. *Gill*, Catalogue of the Fishes of the Eastern Coast of North America, p. 43.
Habitat.—Eastern coast of North America, from New York to Georgia.

IV. ASTROSCOPUS Brevoort.

Uranoscopus sp. *Cuv. et Val.*
Astroscopus *Gill*, Proceedings of Academy of Natural Sciences of Philada., p. 20, Jan. 1860.
Agnus *Günther*, Catalogue of Acanthopterygian Fishes, vol. ii. p. 229, 1860—1.

Head above nearly completely covered with bony plates. Cheeks naked. Preoperculum with two blunt processes generally radiating from the angle of its anterior limb, one of which is directed downwards and forwards. Lower

* Ὑ ψῖλόν and φορὸς, bearing.

jaw not notched beneath. Intralabial filament obsolete. Body naked. Two dorsal fins; the first with four short spines, the second equal to the anal.

Astroscopus resembles Upselonphorus in the absence of an intralabial filament, the condition of the preoperculum, and the naked cheeks, but is distinguished from that genus by the complete armature of the superior surface of the head and the almost naked body.

ASTROSCOPUS ANOPLUS Brevoort.

Uranoscopus anoplus *Cuv. et Val.*, Hist. Nat. des Poissons, tom. viii. p. 493. *Dekay*, Natural History of New York Fishes, p. 37, pl. xxii. fig. 65. *Storer*, Synopsis of the Fishes of North America, p. 46; *ib.* in Memoirs of the American Academy, vol. ii. p. 298.

Astroscopus anoplus *Gill*, Proceedings of the Academy of Natural Sciences of Philadelphia, 1860, p. 20.

Agnus anoplus *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 229.

Astroscopus anoplus *Gill*, Catalogue of the Fishes of the Eastern coast of North America, p. 43.

V. CATHETOSTOMA Günther.

Kathetostoma *Günther*, Catalogue of Acanthopterygian Fishes, &c., vol. ii. p. 231.

Uranoscopus sp. *Cuv. et Val.*

Head nearly square above, and covered with bony plates. Cheeks naked. Preoperculum armed at its inferior margin with several spines. Lower jaw not notched beneath. Intralabial filament obsolete. Body without scales. Dorsal fin single, and commencing over the second half of the pectorals fins, with no strong spines.

This genus is readily distinguished by the naked body and single short and unarmed dorsal fin. The lateral line also ascends less rapidly on the dorsal region, and runs farther from the base of the dorsal fin than in the other members of the subfamily of Uranoscopinæ, except Gnathagnus.

Only one species is known.

CATHETOSTOMA LÆVE Günther.

Uranoscopus lævis *Bloch*, Systema Ichthyologiæ *Schneid.* ed., p. 47, tab. viii.

Ichthyoscopus lævis *Swainson*, Natural History of Fishes, Amphibians and Reptiles, vol. ii. p. 269.

Kathetostoma læve *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 231.

Habitat.—Australian seas.

VI. ICHTHYOSCOPUS Swainson.

Ichthyoscopus sp. *Swainson*, Natural History of Fishes, Amphibians and Reptiles, p. 269, 1839.

Anema sp. *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 230, 1859—60.

Uranoscopus sp. *Cuv. et Val.*

Head above completely mailed. Cheeks naked. Preoperculum unarmed. Lower jaw entire beneath. Intralabial filament obsolete. Body covered with minute scales. Dorsal fin single and opposite the anal, but armed in front with three or four gradually increasing spines.

Ichthyoscopus, as now restricted, contains only species with a scaly body, provided with a single dorsal fin, whose first rays are spinous. There are neither intralabial filaments nor mental barbels.

ICHTHYOSCOPUS LE BECKII Gill.

Uranoscopus Le Beck *Bloch*, Systema Ichthyologiæ, *Schneid.* ed., p. 47.

Uranoscopus inermis *Cuv. et Val.*, Hist. Nat. des Poissons, tom. iii. p. 310, pl. 65.

Ichthyoscopus inermis *Swainson*, Nat. Hist. of Fishes, Amphibians and Reptiles, vol. ii. p. 269.
Anema inermis *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 230.
Habitat.—East Indian seas.

VII. Genyagnus Gill.

Uranoscopus sp. *Cuv. et Væl.*
Anema sp. *Günther.*

Head cuboid with its superior surface covered with osseous plates. Preoperculum unarmed; both the preoperculum and operculum are covered with the skin. Lower jaw entire beneath. *Chin with a barbel*; no intralabial filament. Body covered with extremely minute scales. Dorsal fin long and single, with no spines in front.

The present genus is distinguished among its allies by the form and armature of the head, the presence of a mental barbel and absence of an intralabial cirrhus, and the condition of the dorsal fin. A single species is known as a native of New Zealand.

Genyagnus monopterygius Gill.

Uranoscopus monopterygius *Bloch, Schneid.*, Systema Ichthyologia, *Schneid.* ed., p. 49.
Uranoscopus cirrhosus *Cuv. et Val.*, Hist. Nat. des Poissons, vol. iii. p. 314.
Uranoscopus Forsteri, *Cuv. et Val.*, Hist. Nat. des Poissons, vol. iii. p. 318.
Uranoscopus kouripouia *Lesson*, Voyage de la Coquille, Poissons, pl. xviii.
Ichthyoscopus cirrhosus } *Swainson*, Natural History of Fishes, Amphibians
Ichthyoscopus Forsteri } and Reptiles, vol. ii. p. 269.
Uranoscopus maculatus (*Sol. MSS.*) *Richardson*, Voyage of the Erebus and Terror, p. 54, pl. xxxiii. figs 1—3.
Anema monopterygium *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 230.

VIII. Gnathagnus Gill.

Uranoscopus sp. *auct.*

Head with the osseous compartments of its superior surface mostly separated by smooth intervals. Preoperculum not armed with spines beneath; with about three osseous branches radiating behind and upwards from near its angle. Operculum extended backwards. Lower jaw with a short plectroid, enlargement, directed forwards, preceded in front by an emargination. Intralabial filament and mental barbel absent. Body covered with very small scales. Dorsal fin without spines, shorter than usual, and nearly coterminal with the anal, which is of ordinary size. The lateral line is quite distant from the dorsal fin.

Gnathagnus is one of the most decidedly distinct of any of the genera of Uranoscopinæ. It is especially distinguished by its more slender body, the armature of the head, the peculiar short sabre-like dilations of the lower jaw, the great development of the operculum, and the condition of the dorsal fin.

Gnathagnus elongatus Gill.

Uranoscopus elongatus, *Temminck* et *Schlegel*, Fauna Japonica, *Pisces*, p. 28, pl. ix. fig 2.
Anema elongatum *Günther*, Catalogue of the Acanthopterygian Fishes, &c., vol. ii. p. 230.
Habitat.—Japan.

Leptoscopinæ Gill.

Leptoscopinæ *Gill*, Proceedings of the Academy of Natural Sciences of Philada., 1859, p. 133.

The body is elongated and covered with moderate or rather small scales.

The lateral is only arched before, and for most of its course is straight and nearly central between the dorsal and abdominal outlines.

The head is cuboid, and covered with the naked and smooth skin.

The anus is situated far forwards. The anal fin commences close behind and is very long, having about thirty or more rays. The ventral fins are jugular, and each has a spine and five branched rays.

I. Leptoscopus Gill.

Leptoscopus *Gill*, Proceedings of the Academy of Natural Sciences of Philadelphia, 1859, 133. *Günther*, Catalogue of Acanthopterygian Fishes, &c., vol. ii. p. 231.

Uranoscopus sp. *Richardson*.

Head above little longer than wide. Preoperculum not armed. Operculum fringed behind. Lower jaw entire beneath. No intralabial filament nor mental barbel. Villiform teeth present on the vomerine and palatine bones, as well as on the jaws. Branchial apertures only partially open above. Scales of the lateral line largest. Dorsal fin with no spines, commencing behind the vertical of the anus.

A single species of this genus has been discovered in the Australian seas, at Port Jackson.

Leptoscopus macropygus Gill.

Uranoscopus macropygus *Richardson*, Voyage of the Erebus and Terror, Fishes, p. 55, pl. 33, figs. 4, 5, 6.

Leptoscopus macropygus *Gill*, Proceedings of the Academy of Natural Sciences of Philada., 1859, p. 133.

II. Crapatalus Günther.

Crapatalus *Günther*, Annals and Magazine of Natural History, ser. iii. vol. vii. p. 86, Feb. 1861.

Head above little longer than wide. Preoperculum unarmed. Margin of the operculum fringed. Lower jaw entire. No intralabial filament nor mental barbel. Villiform teeth present only on the jaws; palate smooth. Branchial apertures partially open above. The dorsal fin has no spines, and commences behind the vertical of the anus.

This very interesting genus has been recently made known by Dr. Günther, by whom it was described in the "Annals and Magazine of Natural History." It affords additional evidence, if any more was needed, of the propriety of the approximation of the genus *Dactyloscopus* to the Leptoscopinæ. Although the only distinctive character of great value which now distinguishes the latter group is the condition of the ventral fins, I still regard it as representing a distinct subfamily. The modification of the ventral fins is of greater value in the family of Uranoscopoids than the dentition. As we might expect to find a variation in the latter character, on account of the known affinities of the family, so have we not been totally unprepared to discover the anomalous and blennoid structure of the ventral fins of *Dactyloscopus*. That genus, as I had at first supposed, would not improbably be regarded as a Blennoid, but the reference of the genus to that family, simply on account of the presence of only three articulated and unbranched ventral rays, would violate all natural affinities.

Crapatalus Novæ Zelandiæ Günther.

Crapatalus Novæ Zelandiæ, *Günther*, Annals and Magazine of Natural History, ser. iii. vol. vii. p. 86, pl. x, fig. A.

Habitat.—New Zealand.

Dactyloscopinæ Gill.

Dactyloscopinæ *Gill*, Proceedings of the Academy of Natural Science of Philadelphia, 1859, p. 133.

The body is elongated and covered with moderate or rather small scales. The lateral line is arched only in front, and for most of its length, course nearly at equal distances from the dorsal and abdominal surfaces.

The head is cuboid, and covered with the smooth and naked skin.

The anus is placed far forward. The anal fin commences close behind, and is very long, having nearly thirty or more rays. The ventral fins are jugular, and each composed of about three simply articulated and unbranched rays.

DACTYLOSCOPUS Gill.

Dactyloscopus *Gill*, Proceedings of the Academy of Natural Sciences of Philadelphia, 1859, p. 132.

Head above longer than wide. Preoperculum unarmed. Posterior margin of the operculum fringed. Operculum, suboperculum and interoperculum with membranous extended borders. Lower jaw entire. No intralabial filament nor mental barbal. Villiform teeth only on the jaws. Dorsal fin unarmed.

It may not be deemed unnecessary to add that the family characters above given apply entirely to this genus, and that the branchial apertures are equally widely extended, that the branchiostegal membrane is doubled in front, and that the lips are fringed as in the other members of the family. In all of those characters it differs much from any of the Blennoids.

The genus *Dactyloscopus* was originally established on a species found at Barbados. Mr. Poey, the learned Professor in the University at Havana, has, in his correspondence, informed me that he has obtained two species in Cuba, at least one of which appears to be new. Another species has been discovered by Mr. Xantus, at Cape St. Lucas, and the specimens are preserved in the Museum of the Smithsonian Institution. They will be described on a future occasion.

DACTYLOSCOPUS TRIDIGITATUS Gill.

Dactyloscopus tridigitatus *Gill*, Proceedings of the Academy of Natural Sciences of Philadelphia, 1859, p. 132.

Habitat.—Caribbean Sea.

Descriptions of forty-nine New Species of the Genus MELANIA.

BY ISAAC LEA.

During the past and present years, I have read several papers describing new species of *Unionidæ* and *Melanidæ*, kindly sent to me by E. R. Showalter, M. D., of Uniontown, Alabama, a Correspondent of our Academy, who has been unremitting in his exertions to make known the natural history of that part of the State. In these papers there were few species of the genus *Melania*. They were purposely delayed with a view to bring them as much together as possible; and the present paper will exhibit the vast expansion there of Zoological life in this single genus, the Coosa River really appearing to be the Zoological centre of this particular group.

The great variety of form, color and size will at once strike the Naturalist, and he will be surprised in the examination of these forms to observe how few there are of tuberculate or plicate species, which so well characterise the members of the same family, in the streams which form the Tennessee and Cumberland rivers at no great distance.

MELANIA HARTMANIANA.—Testâ lævi, conicâ, magnâ, vel tenebroso-corneâ vel tenebroso-oliva, valdè vittatâ, imperforatâ; spirâ obtusè conicâ; suturis valdè impressis; anfractibus subplanulatis, instar septenis, ultimo grandi; aperturâ grandi, ovato-rhomboideâ, intus brunneo-vittatâ, ad basim obtusè angulatâ; labro acuto; columellâ incurvatâ.

Hab.—Coosa and Cahawba Rivers, Alabama. E. R. Showalter, M. D.

MELANIA LEWISII.—Testâ striatâ, subcylindraceâ, tenebroso-virente, valdè vittatâ; spirâ subelevatâ, conoideâ; suturis valdè impressis; anfractibus planulatis, sulcatis, instar senis; aperturâ parviusculâ, ovato-rhomboideâ, intus valdè vittatâ, ad basim obtusè angulatâ; labro acuto; columellâ albâ et incurvatâ.
Hab.—Coosa and Talapoosa Rivers, Alabama. E. R. Showalter, M. D.

MELANIA ELLIPTICA.—Testâ lævi, ellipticâ, luteolâ, quadrivittatâ; spirâ brevi, obtusâ, ad apicem plicatâ; suturis impressis; anfractibus senis, subconvexis; aperturâ subgrandi, elongato-ellipticâ, intus quadrivittatâ, ad basim obtusè angulatâ; labro acuto; columellâ albidâ et incurvatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D. and E. Foreman, M. D.

MELANIA RUBICUNDA.—Testâ valdè striatâ, rubidâ, subfusiformi; spirâ subelevatâ, conoideâ; suturis impressis; anfractibus instar senis, convexiusculis; aperturâ subconstrictâ, elongato-ellipticâ, intus rubidâ, ad basim obtuso-angulatâ; labro acuto; columellâ incrassatâ, rubidâ, incurvatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA VESICULA.—Testâ lævi, ellipticâ, luteâ, immaculatâ, subtenui; spirâ brevissimâ, obtusâ; suturis subimpressis; anfractibus ternis, subconvexis; aperturâ grandi, regulariter ovatâ, intus dilute-salmoniâ; labro acuto; columellâ incrassatâ, incurvatâ, ad basim rotundatâ.
Hab.—Alabama. E. R. Showalter, M. D.

MELANIA COOSAENSIS.—Testâ striatâ, fusiformi, corneâ, quadrivittatâ, subcrassâ; spirâ subelevatâ, conicâ; suturis valdè impressis; anfractibus septenis, convexiusculis, sulcatis; aperturâ constrictâ, elongato-ellipticâ, intus albidâ, et quadrivittatâ; labro acuto, subcrenulato; columellâ paulisper incrassatâ, incurvatâ, ad basim obtusè angulatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA GRACILIOR.—Testâ striatâ, fusiformi, viridi-lutescente, subcrassâ; spirâ subelevatâ, conicâ; suturis irregulariter impressis; anfractibus septenis, vix convexis; aperturâ subconstrictâ, elongato-ellipticâ, intus albidâ; labro acuto; columellâ albidâ, infernè paulisper recurvâ, ad basim subrotundatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA PROPRIA.—Testâ lævi, fusiformi, luteo-olivâ, quadrivittatâ, subcrassâ; spirâ obtuso-conoideâ; suturis impressis; anfractibus senis, convexiusculis; aperturâ subgrandi, elongato-ellipticâ, intus albidâ et vittatâ; labro acuto; columellâ inflectâ, albâ, ad basim subangulatâ.
Hab.—Alabama. E. R. Showalter, M. D.

MELANIA NUBILA.—Testâ striatâ, subellipticâ, obtusè conoideâ, tenebroso-virente, obscurè maculatâ vel latè vittatâ, subcrassâ; spirâ obtusè elevata; suturis irregulariter impressis; anfractibus senis, subinflatis, ultimo grandi; aperturâ subgrandi, rhomboido-ellipticâ, intus quadrivittatâ; labro acuto; columellâ arcuatâ, ad basim obtusè angulatâ.
Hab.—Coosa River, Wetumpka, Alabama. E. R. Showalter, M. D.

MELANIA ORBICULA.—Testâ striatâ, globosâ, subcrassâ, luteo-virente, quadrivittatâ; spirâ brevi, obtusâ; suturis valdè impressis; anfractibus quinis, valdè inflatis, ultimo grandi; aperturâ grandi, ellipticâ, intus quadrivittatâ; labro acuto; columellâ albâ, incurvatâ, ad basim obtusè angulatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA CALCULOIDES.—Testâ striatâ, subglobosâ, crassâ, corneâ, robustâ; spirâ conicâ, valdè obtusâ; suturis impressis; anfractibus senis, valdè infla-

tis, ultimo grandi; aperturâ subgrandi, elongato-ellipticâ, intus albidâ; labro acuto; columellâ albidâ, incrassatâ, arcuatâ, ad basim retusâ.
Hab.—Coosa River. Alabama. E. R. Showalter, M. D.

MELANIA PUNICEA.—Testâ lævi, subcylindraceâ, crassâ, puniceâ; spirâ elevatâ, conicâ; suturis impressis; anfractibus convexiusculis; aperturâ parvâ, rotundo-ovatâ, intus albâ; labro acuto; columellâ incrassatâ, albâ, ad basim rotundatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA LUTEOLA.—Testâ lævi, subellipticâ, subtenui, pallido-luteâ; spirâ subelevatâ, conoideâ; suturis paulisper impressis; anfractibus planiusculis; aperturâ subgrandi, intus albidâ; labro acuto; columellâ albidâ, incurvâ; ad basim obtuso-angulatâ.
Hab.—Alabama River. E. R. Showalter, M. D.

MELANIA FASCINANS.—Testâ lævi, subfusiformi, crassiusculâ, luteo-corneâ, nitidâ; spirâ elevato-conicâ; suturis impressis; anfractibus convexiusculis; aperturâ subgrandi, intus albâ, trivittatâ; labro acuto; columellâ albâ, ad basim retusâ.
Hab.—Yellowleaf Creek, Shelby County, Alabama. E. R. Showalter, M. D.

MELANIA QUADRIVITTATA.—Testâ lævi, subellipticâ, crassiusculâ, viridi-luteâ, nitidâ; spirâ obtusè conoideâ; suturis valdè impressis; anfractibus octonis, convexiusculis; aperturâ subconstrictâ, rhombo-ovatâ, intus albidâ, quadrivittatâ; labro acuto; columellâ incurvâ, ad basim angulatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA MIDAS.—Testâ lævi, cylindraceo-ellipticâ, crassiusculâ, virente, obsoletè vittatâ; suturis irregulariter impressis; anfractibus compressiusculis, ultimo pergrandi, infernè obsoletè striatâ; aperturâ grandi, auriculæformis, intus cæruleo-albâ; labro acuto; columellâ cæruleo-albâ, incrassatâ, inflectâ, ad basim obtusè angulatâ.
Hab.—Coosa and Alabama Rivers, near Wetumpka. E. R. Showalter, M. D.

MELANIA VARIATA.—Testâ lævi, subfusiformi, obtuso-conicâ, crassiusculâ, vel luteolâ vel purpurescente; suturis irregulariter impressis; anfractibus senis, supernè planiusculis, ultimo inflato; aperturâ grandi, intus vel luteolâ vel purpurescente; labro acuto; columellâ arcuatâ, inspissatâ, ad basim obtusè angulatâ.
Hab.—Coosa River, at Wetumpka and Montevallo, Bibb County, Alabama. E. R. Showalter, M. D.

MELANIA VIRGULATA.—Testâ lævi, fusiformi, conicâ, crassiusculâ, nitidâ, mucronatâ, luteolâ, quadrivittatâ; suturis subimpressis; anfractibus septenis, supernè constrictâ, ultimo bulboso; aperturâ subgrandi, subellipticâ, intus luteo-albâ et valdè vittatâ; labro acuto; columellâ inflectâ, ad basim angulatâ et canaliculatâ.
Hab.—Coosa and Tallapoosa Rivers, Alabama. E. R. Showalter, M. D.

MELANIA MUCRONATA.—Testâ lævi, acuto-conoideâ, tenui, diaphanâ, stramineo-luteâ; spirâ exertâ, mucronatâ; suturis leviter impressis; anfractibus senis, supernè planulatis: aperturâ parviusculâ, ovato-rhomboideâ, intus luteo-albidâ; labro acuto, sinuato; columellâ ad basim paulisper incrassatâ, subeffusâ et subrecurvâ.
Hab.—Big Prairie Creek, Alabama. E. R. Showalter, M. D.

MELANIA PROPINQUA.—Testâ lævi, subcylindraceâ, subcrassâ, luteolâ, quadrivittatâ; spirâ subelevatâ, conoideâ; suturis valdè impressis; anfractibus

senis, supernè planiusculis; aperturâ ellipticâ, parviusculâ, intus albidâ et vittatâ; labro acuto; columellâ paulisper incrassatâ, infernè rotundatâ.
Hab.—Coosa and Cahawba Rivers, Alabama. E. R. Showalter, M. D.

MELANIA SUAVIS.—Testâ lævi, subfusiformi, subcrassâ, luteo-viridi, politâ, quadrivittatâ; spirâ obtuso-conica; suturis regulariter impressis; anfractibus senis, supernè planiusculis; aperturâ subgrandi, ellipticâ, intus albidâ et vittatâ; labro acuto; columellâ incurvâ, ad basim rotundatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA FALLAX—Testâ lævi, pupæformi, obtuso-conoideâ, subcrassâ, vel tenebroso-fuscâ vel tenebroso-corneâ, obsoletè vittatâ vel evittatâ; suturis impressis; anfractibus septenis, convexiusculis, ultimo parvo; aperturâ parvâ, valdè constrictâ, elongato-ellipticâ; labro acuto; columellâ paulisper inflectâ, ad basim obtusè angulatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA CLAUSA.—Testâ lævi, pupæformi, obtuso-conicâ, crassâ, olivâ, vittatâ vel evittatâ; suturis valdè impressis; anfractibus septenis, convexiusculis; aperturâ parvâ, constrictâ, ellipticâ, intus albidâ; labro acuto; columellâ paulisper inflectâ, ad basim obtusè angulatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA PURPUREA.—Testâ lævi, subfusiformi, obtuso-conicâ, subtenui, tenebroso-rufâ; suturis paulisper impressis: anfractibus quinis, ultimo grandi; aperturâ subgrandi, ellipticâ, intus tenebrosâ; labro acuto; columellâ tenebrosâ, inflectâ.
Hab.—Alabama. E. R. Showalter, M. D.

MELANIA MELLEA.—Testâ lævi, subfusiformi, conica, crassiusculâ, melleâ, aliquandò vittatâ; suturis irregulariter impressis: anfractibus septenis, supernè planulatis, ultimo grandi, inflato; aperturâ grandi, rhomboido-ellipticâ, intus luteolâ; labro acuto; columellâ incrassatâ, inflectâ, infernè obtusè angulatâ.
Hab.—Coosa River, at Wetumpka, Alabama. E. R. Showalter, M. D.

MELANIA VARIANS.—Testâ lævi, vel plicatâ vel striatâ, elevato-conicâ, subcrassâ, luteolâ vel dilutè fuscâ, vittatâ; suturis impressis; anfractibus septenis, supernè planiusculis; aperturâ parviusculâ, ellipticâ, intus albidâ et vittatâ; labro acuto; columellâ albidâ, incurvatâ, ad basim obtusè angulatâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA SHOWALTERII.—Testâ lævi, elevato-conicâ, subcrassâ, luteo-fuscâ, quadrivittatâ, suturis impressis; anfractibus instar senis, supernè planulatis, infernè subinflatis, ultimo subgrandi; aperturâ subgrandi, ovato-rhomboideâ, intus albidâ et vittatâ; labro acuto et paulisper sinuato; columellâ albâ, inflectâ, supernè paulisper incrassatâ, ad basim subrotundatâ.
Hab.—Coosa and Cahawba Rivers, Alabama. E. R. Showalter, M. D.

MELANIA GLANDARIA.—Testâ lævi, obtuso-ellipticâ, crassâ, viridi-luteâ, quadrivittatâ; suturis valdè et irregulariter impressis; anfractibus septenis, convexiusculis, ultimo grandi; aperturâ elongato-ellipticâ, subconstrictâ, intus albâ et valdè vittatâ; labro acuto, subsinuoso; columellâ arcuatâ, supernè et infernè incrassatâ, paulisper canaliculatâ et contortâ.
Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA PUDICA.—Testâ lævi, conoideâ, crassiusculâ, olivaceâ vel rufusculâ; suturis irregulariter impressis; anfractibus senis, convexiusculis; aperturâ parviusculâ, ovatâ, intus cæruleo-albâ; labro acuto; columellâ inflectâ, supernè incrassatâ, ad basim rotundatâ.

Hab.—Yellowleaf Creek, Alabama. E. R. Showalter, M. D.

MELANIA SHELBYENSIS.—Testâ lævi, subellipticâ, subcrassâ, olivaceâ, vittatâ vel evittatâ; suturis impressis; anfractibus supernè planulatis; aperturâ parviusculâ, subovatâ, intus albâ; labro acuto; columellâ inflectâ, ad basim obtusè angulatâ.

Hab.—Yellowleaf Creek, Alabama. E. R. Showalter, M. D.

MELANIA ALABAMENSIS.—Testâ lævi, pupæformi, subelevatâ, subcrassâ, luteolâ, quadrivittatâ; suturis valdè impressis; anfractibus instar septenis, convexis; aperturâ parvâ, subconstrictâ, subellipticâ, intus albidâ et vittatâ; labro acuto; columellâ inflectâ, albidâ, ad basim obtusè angulatâ.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA RARA.—Testâ lævi, elevato-conoideâ, scalariformi, subcrassâ, tenebroso-olivâ, nitidâ; suturis irregulariter impressis; anfractibus octonis, planulatis, supernè angulatis; aperturâ parviusculâ, ellipticâ, intus tenebroso-purpureâ; labro acuto; columellâ incurvâ, purpureâ, ad basim obtusè angulatâ.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA BULLULA.—Testâ lævi, conoideâ, inflatâ, subtenui, viridi-luteâ, quadrivittatâ, suturis impressis; anfractibus instar quinis, inflatis, ultimo subgrandi; aperturâ subgrandi, latè ovatâ, intus albidâ et vittatâ; labro acuto; columellâ albidâ, supernè incrassatâ, sinuosâ, infernè subangulatâ.

Operculum elliptical, spiral, dark brown, with polar point near the base.

Hab.—Yellowleaf Creek, Shelby County, Alabama. E. R. Showalter, M. D.

MELANIA STRAMINEA.—Testâ lævi, regulariter ellipticâ, obtusè conoideâ, crassiusculâ, stramineâ; suturis impressis; anfractibus quinis, ultimo pergrandi et subinflatâ; aperturâ grandi, elongato-ellipticâ, intus luteo-albidâ; labro acuto; columellâ arcuatâ, supernè paulisper callosâ, ad basim obtusè angulatâ.

Operculum ovate, spiral, light brown, with the polar point near the edge towards the base.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA SOLIDULA.—Testâ lævi, subfusiformi, obtusè conicâ, crassiusculâ, luteo-viridi vel luteo-fuscâ, vittatâ; suturis impressis; anfractibus quinis, supernè planulatis, infernè rotundatis, ultimo grandi; aperturâ subgrandi, ovatâ, intus albidâ; labro acuto; columellâ arcuatâ, supernè paulisper callosâ, ad basim obtusè angulatâ.

Hab.—Yellowleaf Creek, near its junction with Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA CAHAWBENSIS.—Testâ lævi, subfusiformi, elevato-conicâ, mucronatâ, subtenui, tenebroso-corneâ, obsoletè vittatâ; suturis linearibus; anfractibus octonis, supernè planulatis, ultimo subgrandi; aperturâ parviusculâ, ovatâ, intus albidâ vel luteolâ; labro acuto; columellâ arcuatâ, ad basim subrotundâ.

Hab.—Cahawba River, Alabama. E. R. Showalter, M. D.

MELANIA CULTA.—Testâ rugoso-striatâ, obtuso-conoideâ, inflatâ, subcrassâ, viridi-luteâ, nitidâ, trivittatâ; suturis valdè et irregulariter impressis; anfractibus septenis, supernè carinatis; aperturâ amplâ, subrhomboideâ, intus albidâ et vittatâ; labro acuto; columellâ incurvâ, dilutè roseâ, infernè angulatâ.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA LITA.—Testâ rugoso-striatâ, pupæformi, conoideâ, subcrassâ, quadrivittatâ, variegatâ, nitidâ; suturis irregulariter impressis; anfractibus senis,

supernè convexis, ultimo elongato; aperturâ subconstrictâ, elongato-ovatâ, intus purpurescente et vittatâ; labro acuto, spissato; columellâ infernè incurvatâ, purpureâ, ad basim rotundatâ.

Hab.—Cahawba River, Alabama. E. R. Showalter, M. D.

MELANIA COPIOSA.—Testâ striatâ, latè ellipticâ, ventricosâ, obtuso-conicâ, crassiusculâ, luteo-corneâ, obsoletè vittatâ; suturis irregulariter impressis; anfractibus quinis, convexiusculis, ultimo pergrandi; aperturâ copiosâ, latè ellipticâ, intus albidâ; labro acuto, sinuoso; columellâ arcuatâ, supernè paulisper incrassatâ, ad basim subrotundâ.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA PERGRATA.—Testâ striatâ, subcylindraceâ, obtusè conicâ, crassiusculâ, viridi-corneâ, suturis valdè impressis; anfractibus senis, supernè humerosis, striis transversis crebrè indutis, ultimo pergrandi et cylindraceo; aperturâ grandi, elongato-ovatâ, intus albidâ; labro acuto; columellâ arcuatâ, supernè paulisper callosâ, ad basim subrotundatâ.

Operculum, ovate, spiral, dark brown, with the polar point on the edge near to the base.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA BELLULA.—Testâ striatâ, subellipticâ, obtusè conoideâ, crassiusculâ, luteo-corneâ, quadrivittatâ; suturis valdè impressis; anfractibus instar quinis, convexiusculis, ultimo grandi; aperturâ subgrandi, ellipticâ, intus albidâ et vittatâ; labro acuto; columellâ albâ, inflectâ, ad basim obtusè angulatâ.

Operculum elliptical, spiral, dark brown, with the polar point near the inner edge, about one-fourth from the base.

Hab.—Yellowleaf Creek, Shelby County, Alabama. E. R. Showalter, M. D.

MELANIA ÆQUA.—Testâ substriatâ, conicâ, subcrassâ, tenebroso-fuscâ, suturis impressis; anfractibus instar senis, supernè planulatis; aperturâ parvâ, rhomboideâ, intus albidâ; labro acuto; columellâ inflectâ, paulisper incrassatâ, ad basim obtusè angulatâ.

Hab.—Yellowleaf Creek, Alabama. E. R. Showalter, M. D.

MELANIA CAPILLARIS.—Testâ crebrè striatâ, angustè ellipticâ, crassiusculâ, luteo-fuscâ, striis transversis capillaris crebressimè indutis; suturis irregulariter impressis; anfractibus subcompressis, ultimo grandi; aperturâ grandi, elongato-ellipticâ, intus striis capillaris; labro crenulato; columellâ albidâ, incrassatâ, incurvâ, ad basim obtusè angulatâ.

Operculum ovate, spiral, dark brown, with polar point near the inner side and near to the base.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D. and Wm. Spillman, M. D.

MELANIA GRATIOSA.—Testâ tuberculatâ, aliquando striatâ, obtuso-fusiformi, crassiusculâ, luteo-viridi, vel vittatâ vel evittatâ; suturis impressis; anfractibus senis, supernè planulatis, ultimo grandi; aperturâ subgrandi, subrhomboideâ, intus albidâ; labro acuto, subsinuoso; columellâ inflectâ, incrassatâ, ad basim subangulatâ.

Operculum ovate, spiral, dark brown, with the polar point near the base.

Hab.—Coosa River, Alabama. E. R. Showalter, M. D.

MELANIA PAULA.—Testâ carinatâ, conicâ, tenui, diaphanâ, rufo-corneâ; suturis paulisper impressis; anfractibus senis, supernè acuto-carinatis, ultimo sub-bicarinato; aperturâ parviusculâ, lato-ellipticâ, intus albidâ; labro acuto; columellâ vel albidâ vel rufescente, inflectâ, ad basim acuto-angulatâ.

Hab.—Cahawba River, Alabama. E. R. Showalter, M. D.

MELANIA BLANDA.—Testâ plicatâ, obtusè fusiformi, supernè obtusè conicâ, subtenui, tenebroso-corneâ; suturis impressis; anfractibus quinis, supernè

planulatis, ultimo grandi et subangulato; aperturâ subgrandi, ellipticâ, intus luteo-albâ; labro acuto; columellâ incrassatâ, inflectâ, infernè subangulatâ.
Hab.—Yellowleaf Creek, Alabama. E. R. Showalter, M. D.

MELANIA CREPERA.—Testâ substriatâ, conicâ, subcrassâ, fuliginosâ; spirâ subelevatâ; suturis irregulariter impressis; anfractibus senis, convexiusculis; aperturâ ovato-rhombicâ, intus albidâ; labro acuto; columellâ inflectâ, supernè paulisper incrassatâ, ad basim obtusè angulatâ.
Hab.—Yellowleaf Creek, Shelby County, Alabama. E. R. Showalter, M. D.

MELANIA FUMEA.—Testâ lævi, conicâ, subtenui, fumeâ, subnitidâ, aliquando obsoletè vittatâ; spirâ subelevatâ; suturis irregulariter impressis; anfractibus supernè planulatis, infernè subinflatis; aperturâ ovato-rhombicâ, intus albidâ; labro acuto; columellâ inflectâ, supernè paulisper incrassatâ, ad basim subrotundâ.
Hab.—Yellowleaf Creek, Shelby County, Alabama. E. R. Showalter, M. D.

MELANIA PROPRIA.—Testâ lævi, elongato-ellipticâ, subtenui, luteo-corneâ, obsoletè vittatâ, nitidâ; spirâ elevatâ; suturis valdè impressis; anfractibus instar senis, supernè convexiusculis, infernè inflatis; aperturâ subgrandi, ovatâ, intus luteo-albâ; labro acuto; columellâ inflectâ, supernè incrassatâ, ad basim rotundatâ.
Hab.—Yellowleaf Creek, Shelby County, Alabama. E. R. Showalter, M. D.

The resignation of Dr. C. J. Cleburne, U. S. N., as a member of the Committee on Conchology, on account of absence on official duty, was read and accepted.

Permission having been obtained, Mr. Cope presented, on behalf of Mr. H. C. Wood, Jr., a large specimen (length 40 in.) of the iguana of Andros Island, one of the Bahamas. The animal had been mentioned by Catesby in his history of Carolina and the Bahamas, but had not apparently been noticed by any subsequent naturalist. The species was congeneric with, and allied to Cyclura lophoma *Gosse*, of Jamaica, but the crest was very low, and extensively interrupted over the shoulder and loins. The head plates differed from those of the Cuban species, C. nubila and MacLeayi. The color of the animal was black, with yellowish reticulations. The mastoid and gulo-rictal tubercles, dorsal crest, caudal whorls, middle of the abdomen, and antibrachium, were pink. The head and jaws light pinkish brown. Mr. Cope stated that a further account would shortly be given of the animal, under the name of Cyclura baeolopha. The Academy Museum possesses, also, a fine individual of C. pectinata *Wieg.* from Honduras, presented by Dr. J. L. Le Conte.

Mr. Cope presented a specimen of Amblystoma Jeffersonianum *Baird*, found near Thorndale, Chester Co., Pa. The species was very rare, having to the speaker's knowledge been previously only found in Western Pennsylvania and near Philadelphia. Dr. Hallowell was in error in regarding this species as identical with the ingens of Green, hence the mistake which the speaker had formerly fallen into,* of quoting Tschudi's Xiphonura as applicable to the same type as Gray's Heterotriton.

Another specimen of an Amblystoma on the table, from Ohio, Mr. Cope observed had been regarded † as belonging to the Sal. porphyritica of Green. Prof. Baird having shown that that species is the S. salmonea of Storer, or Pseudotriton salmoneus *Baird*, he would call the Ohio species Amblystoma microstomum.

* Proc. Acad. Nat. Sci. Phil 1859, p. 123. † Op. cit. 1856, p. 8.

Of twelve species of Salamanders which were known to inhabit Chester Co., Pa., the following had been seen but once in the course of six years' search. Spelerpes longicaudus, Plethodon glutinosus, Amblystoma punctatum, A. conspersum and A. Jeffersonianum. Hemidactylium scutatum had been seen only twice, in two distant localities, both upon the same day.

June 4th.

Mr. LEA, President, in the Chair.

Thirty-four members present.

The following papers were presented for publication:

"Descriptions of new species of Cyrena, Corbicula and Sphærium, by Temple Prime."

"Descriptions of new Palæozoic Fossils from Illinois and Iowa, by F. B. Meek and A. H. Worthen."

"Descriptions of new fossil Mollusca from the Cretaceous formation at Haddonfield, N. J., by Isaac Lea."

And were referred to Committees.

Mr. Gabb remarked, that a few days ago he had discovered an outcrop of the "Ripley Group" at the point where the West Jersey Railroad crosses Big Timber Creek, between Gloucester and Red Bank. The deposit forms the subsoil of the meadows, and appears to have been exposed in digging the ditches. It contains the usual characteristic fossils of this bed, and derives its principal interest from the fact that this locality is the nearest to Philadelphia of the fossiliferous portions of the Cretaceous formation yet announced.

June 11th.

Mr. JOSEPH JEANES, in the Chair.

Twenty-three members present.

The following paper, being presented for publication, was referred to a Committee:

"Descriptions of two new species of fresh-water shells from Michigan, by Manly Miles."

Mr. Ennis exhibited two of the young of the *Kalemys Muhlenburgii*. They were found in a meadow near Haddonfield, in Camden County, New Jersey. They are of different stages of growth, and show very remarkably the relation of this genus to two other genera. The younger is spotted with small yellow spots similar to those of the *Nanemys guttata*. The older of the two is sharply sculptured with concentric grooves on all the plates of the carapace, similar to those of the *Glyptemys insculpta*. These facts help to show that, in a systematic arrangement, this genus—the *Kalemys*—should stand between the *Nanemys* and the *Glyptemys*, and this is actually the place assigned to it by Agassiz for other reasons; he, in his late elaborate treatise on the *Testudinata* says he had never seen the young of the *Kalemys*.

The spots on the head and neck of the young *Kalemys* are as numerous as those of the adult *Nanemys*. They are also of a bright lemon color, though two of the spots on the sides of the neck are larger and of the deep orange characteristic of this species. The spots on the carapace are of a dim dusky yellow. There is one on the middle of each plate except on the bordering